REMARKS

The claims before the Examiner are claims 6 to 8, 11 to 13, 16 to 18, 21 and 22. These claims are similar to the claims that were not allowed in the parent application but independent claims 6 and 7 have been amended better to point out that which applicants regard as their invention; more particularly, those claims now specify that the coating of the circumferential wall with a high molecular weight organic reinforcing material is carried out "in a narrow band only" (emphasis added). This concept is shown clearly in Figs. 2 to 4, which are submitted herewith and which were filed during the course of prosecution of the parent case.

The claimed invention differs patentably from the technique taught in JP '652, the reference used to reject the claims in the parent case, for the reasons developed previously and the additional reasons presented below.

It should be noted that the conventional manufacturing method for a catalyst using a honeycomb structure consists of the steps of extruding a honeycomb body from a nozzle having an appropriate shape, drying and firing the thus-extruded honeycomb structure, and

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then transferring the structure to a location at which a catalyst

is loaded thereon, coating the thus-transferred honeycomb structure

with an alumina slurry, and finally loading a catalyst thereon

after drying and firing the honeycomb structure coated with alumina

slurry.   See the discussion at page 2, lines 2 to 19 of the

specification.

JP '652 is directed to a method for forming a portion in the

honeycomb structure just before loading alumina slurry thereon to

save noble metal when such a metal is loaded on the inner surface

of the honeycomb structure.   One may easily accept this fact by

reading page 2, right upper column, lines 1 to 5 of the reference,

stating,

> The present invention has been completed to solve
> the problems associated with the conventional methods;
> thus, the objective of the present invention is to
> manufacture a monolithic catalyst having a portion in
> which the catalyst loaded layer containing no alumina and
> the like is formed in the non-catalyst-loaded portion of
> the monolithic carrier."

That is, coating with a polymer is carried out just before the loading of the catalyst in the JP '562 method. The reference says nothing about problems that are encountered during transportation of the honeycomb structure. Moreover, the problem solved by the present invention had not been recognized before honeycomb structures having an ultra thin wall thickness were introduced; see page 3, line 16 to page 5, line 1 of the specification.

The following analysis is given to demonstrate the difference in the order of the steps between the methods of the present invention and JP '562.

	Present Invention	JP '562
1st step	Extrusion molding	Extrusion molding
2nd step	Coating with polymer	Transporting the catalyst forming process
3rd step	Transporting to the catalyst forming process	Inspection before further processing
4th step	Inspection before further processing	Coating with a polymer
5th step	Coating with alumina	Coating with alumina
6th step	Drying & firing	Drying & firing
7th step	Loading with a noble metal	Loading with a noble metal

There is no recognition at all in JP '562 of the need to protect the circumferential portions of the honeycomb structure from damage. No substantial protection effects can be expected in the method disclosed in JP '582 because coating with a polymer is carried out after transportation to the site where catalyst loading is carried out. On the other hand, in the present invention, coating with a polymer is carried out prior to the transportation to the site where the catalyst loading is carried out. In this respect, imagine how often the honeycomb structure is exposed to a dangerous situation during transportation from the honeycomb structure production site to the site for catalyst loading, compared with internal transportation within the same site. It is noted also that the chance of being exposed to damage lessens when steps 5 to 7 are automated.

In the JP '562 method, the portion to be coated with a polymer should be a relatively broad portion, as can be seen from Figs. 1 and 2, to save the amount of the catalyst to be loaded. That is, in the case shown in Fig. 1, the polymer should be applied to the outer periphery portion of the honeycomb structure in which no

exhaust gas passes. And in the case shown in Fig. 2, the entrance portion of the honeycomb structure is coated with a polymer to prevent loading of noble metal thereon. This treatment is carried out because noble metal so positioned is easily poisoned with deleterious components such as sulfur monoxide contained in the exhaust gas.

This difference between the two methods becomes clearer when comparing the amount of the resin used for coating in the respective cases. The following assumptions are made for purposes of this explanation:

Honeycomb structure wall thickness: 0.3 mm for the most popular honeycomb structure. The inner surface area of the outer skin of the honeycomb structure used in the reference was assumed to be about one half of the outer surface area of the outer skin by deducting the connecting area between the outer skin and the partition walls. The influence of this assumption is insignificant because the inner surface area of the outer skin is less than 2% of the total surface area of the honeycomb structure using the following values.

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The following calculation was made:

G = (40x(p-t)/p/p);

Sp = π x D x h x 1.5

wherein G is the surface area per cm^2 of the internal wall, Sp is the surface area of the outer periphery portion of the honeycomb structure, t is the wall thickness, D is the diameter of the honeycomb structure from the one outer periphery portion to the other outer periphery portion, H is a length of the honeycomb structure, and p is a cell pitch. The respective values were shown below or obtained by the following manner:

P = 2.54/(√200) = 0.1796,

Sp = π x 10 x 10 x 1.5 = 417.2 cm^2,

D = 10 cm, and

H = 10 cm, and

G = (4x(0.1796-0.03)/0.1796/0.1796 = 18.55 cm^2/cm^3.

Thus the total surface area S of the honeycomb structure is calculated thusly:

(π/4)xDxDxHxG + Sp = (π/4)x10x10x10x18.55+417.2=14986 cm^2.

The following assumptions were made for the calculation of the total area coated for the respective cases:

Case for Fig. 1 of JP `562: Range up to 1 cm in the direction of the center of the honeycomb structure:

Case for Fig. 2 of JP `652: Range up to 2 cm in the axial direction of the honeycomb structure from one of the ends of the edges.

Case for present invention: Width of 1 cm from the extremity at both ends.

Thus, the coated area for the respective cases is given as follows:

Case for Fig. 1: $S1=(\pi/4)\times(10\times10-8\times8)\times10\times18.55+417.2=5662$ cm^2,

Case for Fig. 2: $S2= S\times0.2 = 2997.2$cm^2, and

Case for the present invention: $S3=Fig.1:S1= \pi\times D\times1\times2\times1.5=94.2$ cm^2

In the case of Fig. 1, the coated area corresponds to 38% of the total surface area; in the case of Fig. 2, the coated area is 20%, while for the present invention the coated area is 0.6%.

As can be taken from these values, no practical noble metal saving effect can be seen in the case of the present method.

Moreover, in Fig. 2 of JP '562, only one side of the end edge portions is coated. In such a case, it is quite clear that no protective effect can be expected at all.

While wash coating with alumina may also provide a protective effect, if coating with a polymer is carried out prior to coating with a wash coating liquid, a wash coating liquid cannot be coated further on the thus-coated portion due to the presence of the polymer coated layer. And if the honeycomb structure is fired under this condition, the portion coated with the polymer would become weak because the polymer is lost during the firing and no wash coating could exist thereon.

Thus, no artisan would be lead to employ coating with a polymer merely from a reading of the JP '562 disclosure.
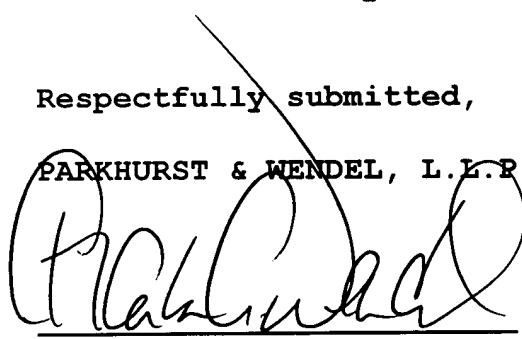
In other words, an artisan would not contemplate coating the specified portion in the honeycomb structure, as defined in the claims, with a polymer to solve the problem associated with the introduction of honeycomb structures having a wall thickness thinner than in previous honeycomb structures. There is no such contemplation because JP '562 does not suggest or imply the presence of such a problem when a honeycomb structure having a thinner wall thickness has been introduced in order to cope with the present stricter regulations.

Favorable consideration of the case is earnestly solicited.

Respectfully submitted,

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